REQUEST FOR ACCESS TO AN APPLICATION UNDER 37 CFR 1.14(e)

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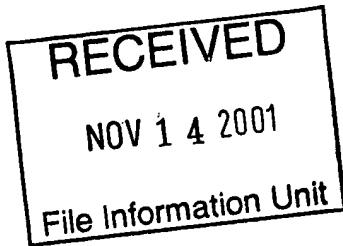
In re Application of

Application Number 08/879475 08/561665 ~~11/22/95~~	Filed 11/22/96
Art Unit 2111	Examiner Shin

Paper No. 36

Assistant Commissioner for Patents
Washington, DC 20231

1. ☐ I hereby request access under 37 CFR 1.14(e)(2) to the application file record of the above-identified ABANDONED Application, which is not within the file jacket of a pending Continued Prosecution Application (CPA) (37 CFR 1.53(d)) and is: (CHECK ONE)

☐ (A) referred to in:

United States Patent Application Publication No. 5889386 , page _____, line_____,

United States Patent Number_____, column _____, line _____, or

an International Application which was filed on or after November 29, 2000 and which

designates the United States, WIPO Pub. No. _____, page _____, line_ _____.

☐ (B) referred to in an application that is open to public inspection as set forth in 37 CFR 1.11(b) or

1.14(e)(2)(i), i.e., Application No._____, paper No. _____, page _____, line _____.

2. ☐ I hereby request access under 37 CFR 1.14(e)(1) to an application in which the applicant has filed an authorization to lay open the complete application to the public.

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US005889386A

United States Patent [19]

Koenck

[11] **Patent Number:** 5,889,386

[45] **Date of Patent:** Mar. 30, 1999

[54] **BATTERY CONDITIONING SYSTEM HAVING COMMUNICATION WITH BATTERY PARAMETER MEMORY MEANS IN CONJUNCTION WITH BATTERY CONDITIONING**

[75] Inventor: **Steven E. Koenck**, Cedar Rapids, Iowa

[73] Assignee: **Intermec Technology Corporation,** Everett, Wash.

[21] Appl. No.: **82,061**

[22] Filed: **May 20, 1998**

Related U.S. Application Data

[63] Continuation of Ser. No. 879,475, Jun. 20, 1997, which is a continuation of Ser. No. 561,665, Nov. 22, 1995, abandoned, which is a continuation of Ser. No. 134,881, Oct. 12, 1993, Pat. No. 5,508,599, which is a continuation of Ser. No. 769,337, Oct. 1, 1991, Pat. No. 5,278,487, which is a continuation of Ser. No. 544,230, Jun. 19, 1990, abandoned, which is a division of Ser. No. 422,226, Oct. 16, 1989, Pat. No. 4,961,043, which is a division of Ser. No. 168,352, Mar. 15, 1988, Pat. No. 4,885,523, which is a continuation-in-part of Ser. No. 944,503, Dec. 18, 1986, Pat. No. 4,737,702, which is a continuation-in-part of Ser. No. 876,194, Jun. 19, 1986, Pat. No. 4,709,202, which is a division of Ser. No. 797,235, Nov. 12, 1985, Pat. No. 4,716,354, which is a continuation-in-part of Ser. No. 612,588, May 21, 1984, Pat. No. 4,553,081, which is a continuation-in-part of Ser. No. 385,830, Jun. 7, 1982, Pat. No. 4,455,523.

[51] Int. Cl.^{6} **H02J 7/00**

[52] U.S. Cl. **320/136; 320/107; 320/112; 320/114; 320/134; 320/427; 320/426**

[58] Field of Search 320/107, 106, 320/112, 113, 114, 115, 116, 134, 136; 324/426–435

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,971,980	7/1976	Jungfer et al. .
4,295,097	10/1981	Thompson et al. .
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Assistant Examiner—K. Shin
Attorney, Agent, or Firm—McAndrews, Held & Malloy, Ltd.

[57] **ABSTRACT**

In an exemplary embodiment, a battery conditioning system monitors battery conditioning and includes a memory for storing data based thereon; for example, data may be stored representative of available battery capacity as measured during a deep discharge cycle. With a microprocessor monitoring battery operation of a portable unit, a measure of remaining battery capacity can be calculated and displayed. Where the microprocessor and battery conditioning system memory are permanently secured to the battery so as to receive operating power therefrom during storage and handling, the performance of a given battery in actual use can be accurately judged since the battery system can itself maintain a count of accumulated hours of use and other relevant parameters. In the case of a non-portable conditioning system, two-way communication may be established with a memory associated with the portable unit so that the portable unit can transmit to the conditioning system information concerning battery parameters (e.g. rated battery capacity) and/or battery usage (e.g. numbers of shallow discharge and recharge cycles), and after a conditioning operation, the conditioning system can transmit to the portable unit a measured value of battery capacity, for example.

20 Claims, 24 Drawing Sheets

08/879475

Portable Computer Terminal Device

Terminal Display Circuits 72

Terminal Processor and Memory Circuits 71

+CHG.

101 103

Battery Charging Controller 102

Battery Charging Voltage Monitor 104

Rechargeable Battery Means 20

Battery Voltage Monitor 91 / 96 / 92

Battery Current Monitor 97 / 93

Battery Temperature Monitor 98

Battery Deep Discharge Controller 110

Digital Interface

Voltage Regulator and Reset 63 RESET

Battery Processor, Timing and Memory Circuits 104 / 96 / 97 / 98 / RESET

82

111

95

102

V+

41 42 43 44 45 46 51 81 +CHG.

Battery Pack and Associated Monitoring and Conditioning Circuitry